# STATEMENT OF BASIS

# SPACE LAUNCH COMPLEX 36
# SOLID WASTE MANAGEMENT UNIT NO. 50
# 45TH SPACE WING
# CAPE CANAVERAL AIR FORCE STATION
# BREVARD COUNTY, FLORIDA

## PURPOSE OF STATEMENT OF BASIS

This Statement of Basis (SB) has been developed in order to inform the public and give the public an opportunity to comment on a proposed remedy to clean up contamination at the Space Launch Complex 36 (SLC-36). A 45th Space Wing (45th SW) installation restoration partnering (IRP) team consisting of United States Air Force (USAF), National Aeronautics and Space Administration (NASA), United States Environmental Protection Agency (USEPA), the State of Florida Department of Environmental Protection (FDEP), the U. S. Army Corps of Engineers, and various environmental consultants have determined that the proposed remedy is cost effective and protective of human health and the environment. However, prior to implementation of the proposed remedy, the 45th SW IRP team would like to give an opportunity for the public to comment on the proposed remedy. At any time during the public comment period, the public may comment as described in the "How Do You Participate" section of the SB. Upon closure of the public comment period, the 45th SW IRP team will evaluate all comments and issues raised in the comments and determine if there is a need to modify the proposed remedy prior to implementation.

### Brief Site Description

SLC-36 is located off Central Control Road, 0.25 miles west of the Atlantic Ocean (See Figure 1). The facility was constructed in 1961 for the Atlas Centaur Missile Program. NASA controlled the facility from 1961 through 1990. Currently the facility is an active launch complex, used for both USAF and commercial launches.

## WHY IS CLEANUP NEEDED?

The result of investigations conducted under he Resource Conservation and Recovery Act (RCRA) indicated that a two volatile organic compounds (listed in Table 1) are present in the groundwater at levels that could be potentially harmful to human health. Additionally, polychlorinated biphenyls (PCBs), are present in the soil at levels that could be potentially harmful to human health under residential use scenarios.

### The Clean-up Remedy

The proposed clean-up remedy for SLC-36 includes (but is not limited to) the following components:

- Natural attenuation of groundwater to remove contaminants through natural processes, primarily biodegradation.
- Implementation of land use controls designed to prevent exposure to site contaminants. These include:
  - Prohibition of residential development
  - Periodic monitoring of groundwater to document water quality and contaminant levels
  - Posting warning signs on-site

A complete list of land use-controls and other protective measures are found in the SLC-36 Land Use Control Implementation Plan (LUCIP).

## HOW DO YOU PARTICIPATE?

The 45th SW IRP team solicits public review and comment on this SB prior to implementation of the proposed remedy as a final remedy. The final remedy for SLC-36 will eventually be incorporated into the Hazardous and Solid Waste Amendments (HSWA) Permit for Cape

In accordance with RCRA Section 7004(b), this Statement of Basis summarizes the proposed remedy for CCAFS SLC-36. For detailed information, consult the SLC-36 RFI Report which is available for review at the 45th SW Environmental Management Office (See "How Do You Participate") or on-line at http://www.mission-suppport.org/45SW_IRP_EA.

Canaveral Air Force Station (CCAFS).

The public comment period for this SB and the proposed remedy will begin on the date that a notice of the SB's availability is published in a major local newspaper of general circulation. The public comment period will end 45 days thereafter. If requested during the comment period, the 45th SW IRP team will hold a public meeting to respond to any oral comments or questions regarding the proposed remedy. To request a hearing or provide comments, contact the following person in writing within the 45-day comment period:

Mr. Jorge Caspary
FDEP-Bureau of Waste Cleanup
2600 Blair Stone Road, MS-4535
Tallahassee, FL 32399-2400
E-mail: Jorge.Caspary@dep.state.fl.us
Telephone: (850) 921-9986

The HSWA Permit , the SB, and the associated Administrative Record, including the RFI Report, will be available to the public for viewing and copying at:

Environmental Management, CEV/ESC
Facility 1638, Samuel Phillips Parkway
Cape Canaveral Air Force Station, FL
For public access call (321) 853-0965

This information can also be found on-line at http://www.mission-support.org/45SW_IRP_EA

The HSWA Permit, the SB, and SLC-36 Report summaries will be available for viewing and copying at:

Central Brevard Library
308 Forrest Avenue
Cocoa, Fl, 32922

To request further information, you may contact one of the following people:

Ms. Teresa Green
Environmental Restoration Element Chief
45 CES/CEVR
1224 Jupiter Street
Patrick Air Force Base, FL 32925-3343
E-mail: teresa.green@patrick.af.mil
Telephone: (321) 853-0965

Mr. Jorge Caspary
See previous contact information

Mr. Timothy R. Woolheater, P. E.
EPA Federal Facilities Branch
Waste Management Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960
E-mail: woolheater.tim@epamail.epa.gov
Telephone: (404) 562-8510

## FACILITY DESCRIPTION

USAF established the 45th SW as the primary organization for the Department of Defense aerospace force programs. Historically, the National Aeronautics and Space Administration (NASA) also performed space launch related operations on the 45th SW property and at SLC-36. These operations have involved the use of toxic and hazardous materials. Under RCRA and the HSWA Permit (CCAFS Permit No. FL2800016121) issued by the USEPA, the 45th SW was required to perform an investigation to determine the nature and extent of contamination from Solid Waste Management Unit (SWMU) No. 50, Space Launch Complex 36.

## SITE DESCRIPTION AND HISTORY

SLC-36 is located on CCAFS approximately 0.25 miles west of the Atlantic Ocean (See Figure 1). The site is an active launch complex, consisting of two launch pads, deluge basins, support structures and storage areas. Launch Pad 36A is used by the USAF and Pad 36B is used by Lockheed Martin to launch commercial payloads.

Launch Pad 36A was constructed in 1961, followed by the construction of Pad 36B in 1964. Both pads were constructed to support the Atlas Centaur Missile Program. SLC-36 was transferred to NASA in 1961, and was

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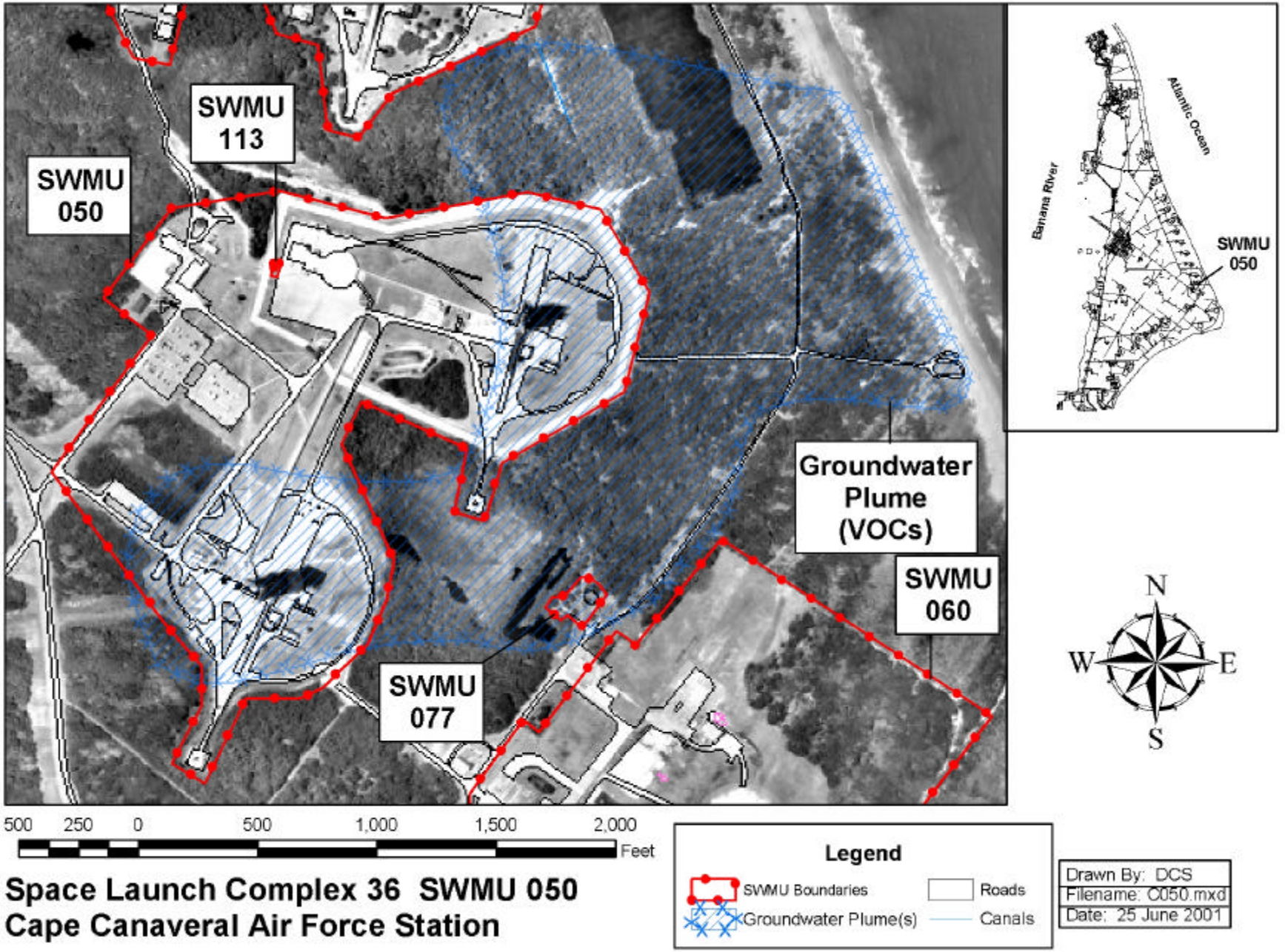

operated and maintained by NASA until its transfer back to USAF in 1990. SLC-36 has been used to support the Atlas Centaur Missile Program throughout its history.

The Atlas program utilizes liquid propellants, including hydrazine, RP-1, and liquid oxygen. Solvents were used to flush rocket engine components. These and other hazardous materials were stored and used at various locations around SLC-36. During launch operations, up to 32,000 gallons of water per minute were used to suppress vibrations and for cooling purposes. These "deluge" waters are collected in a concrete flumeway and basin before being discharged to the environment. Historically, excess solvents and fuels were sometimes discharged into the deluge basin. Since 1984, these commodities have been captured and drummed.

In the past, it is suspected that the launch stand and other site support structures were painted with coatings that contained PCBs. It is believed that the PCBs helped the paint withstand the extreme temperatures generated at launch time. Discharge of contaminated deluge water and dispersion of the paint chips that resulted from sandblasting operations are considered the primary causes of PCB contamination.

Although SLC-36 is located on USAF property, a Memorandum of Agreement was established with NASA, through which NASA agreed to conduct the investigations required under the CCAFS HSWA permit. NASA conducted the following investigations:

- 1989: A Preliminary Assessment including records search, site reconnaissance, and interviews with knowledgeable aerospace personnel identified 27 areas of concerns which warranted further investigation. A Site Investigation (SI) was recommended to collect and analyze the site's environmental media (soil, groundwater, surface water, and sediment) to evaluate the presence or absence of contamination.
- 1989: An abbreviated SI was conducted in order to document site conditions prior to the facility's transfer from NASA to USAF control. The SI report concluded that contaminants were present in soil, groundwater, surface water and sediment.
- 1990-1993: A Baseline Audit was performed to document site conditions prior to finalization of a lease agreement with a commercial entity. A Preliminary Contamination Delineation was also conducted to summarize NASA groundwater investigations and to delineate the groundwater contaminant plume.
- 1993-1999: An RFI was performed, detailing the sampling and analysis of site soil, groundwater, surface water, and sediment. These results were used to determine human health and ecological risks. The Human Health Risk Assessment (HHRA) indicated that potential risk existed from site groundwater and soil. The Ecological Risk Assessment (ERA) indicated potential ecological risk from site soils. Ecological risk and human health risk to site workers posed by soils was mitigated by a subsequent Interim Measure (IM).
- 2000: A Corrective Measure Study was undertaken to evaluate and select a remedy for groundwater and soil contamination at SLC-36. The CMS recommended that an IM be conducted to excavate contaminated soils and that monitored natural attenuation of groundwater be implemented to ensure that groundwater contaminants continue to degrade through natural processes.
- 2001: An Interim Measure (IM) was performed to remove soil contaminated with PCBs located throughout the launch complex. The clean-up action resulted in the removal of approximately 360 cubic yards (505 tons) of contaminated soil. A site-specific risk-based clean-up level (18 mg/kg) was calculated, based on the facility's status as an active launch complex.

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Soils within the secure area of SLC-36 (inside the fence) were remediated to this level. Soils outside the fence were remediated to 0.5 mg/kg, a level calculated to be protective of ecological receptors by the risk assessment.

- 2000 through Current: A Long Term Monitoring (LTM) Work Plan was submitted and LTM was initiated. The 45th SW IRP team felt it was incumbent to implement LTM in order to ensure that groundwater contaminants were appropriately monitored and tracked. LTM is currently on-going.

## SUMMARY OF SITE RISK

As part of the RFI activities, an HHRA and an ERA were conducted to estimate the health and environmental risks associated with the site-specific contamination. The risk assessments were performed in accordance with risk management decision processes established by the USEPA, FDEP, and the USAF at the time the RFI was initiated.

The Chemicals of Concern (COCs) identified for human health during the RFI were:

- Soil: aroclor-1248, aroclor-1254, aroclor-1260, cadmium, chromium, lead, and zinc
- Groundwater: antimony, arsenic, barium, , chromium, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride,

Sediment at SLC-36 was not addressed in the human health risk assessment based on incomplete exposure pathways for all potential receptors. Surface water was not found to pose an unacceptable risk or hazard to human health at SLC-36.

Soils exceeded the one in one million (1/1,000,000) cancer threshold for the hypothetical future adult resident, the hypothetical future child resident, future industrial worker, and current industrial worker. The primary contributor to cancer risk was aroclor-1260 (a PCB). Soils also exceeded the hazard index target value of 1.0 for the hypothetical future child resident. Aroclor 1260 was also the most significant component of noncarcinogenic hazard. Cadmium, chromium, lead, and zinc were only identified as COCs due to minor noncarcinogenic risk contributions to the hypothetical future child. The maximum concentrations of these compounds did not exceed FDEP Residential and Industrial Soil Cleanup Targets, therefore these metals were not addressed in the final remedy. A soil removal was completed following the CMS. This removal targeted PCB-contaminated areas outside the fenceline that posed a potential risk to future residents and PCB-contaminated areas inside the fenceline that posed a potential risk to industrial workers.

Groundwater exceeded the one in one million (1/1,000,000) cancer risk threshold and the non-carcinogenic hazard index target of 1.0 for the future industrial worker, the hypothetical future adult resident, and the hypothetical future child resident. Vinyl chloride and arsenic are the major contributors to cancer risk , while cis-1,2-dichloroethene, arsenic, and chromium are the primary components of the noncarcinogenic hazard. Evaluations in the CMS determined that only cis-1,2-dichloroethene, chromium, and vinyl chloride the EPA Maximum Contaminant Levels (MCLs) which govern cleanup. Furthermore, detections of chromium were isolated and infrequent. Based on this assessment, the CMS recommended that chromium be eliminated from groundwater remediation strategy at SLC-36

The ERA was conducted to evaluate the possibility that land and aquatic organisms (eco-receptors) may be at risk from site-related contaminants. The ERA was based on laboratory analyses of soil, surface water, and sediment samples. Groundwater was not evaluated in the ERA, as there is no identified exposure pathway. The 45th SW IRP Team agreed that due to the site's status as an active launch complex, areas inside the facility fenceline represent poor ecological habitat. The ERA therefore focused on areas outside the

fenceline at SLC-36. The RFI selected preliminary ecological COCs, which were further refined during the CMS. Based on the CMS, ecological COCs are:

- Sediment: bis(2-ethylhexyl)phthalate, chromium, and PCBs
- Soil: Aroclor-1260 (PCB)

Modeling was completed to determine whether these compounds actually represent a significant risk to ecological receptors. Modeling results indicated that none of the COCs present a significant risk to ecological receptors under realistic use scenarios. The CMS concluded that levels of contaminants outside the perimeter fence at the site are too low to be of concern to ecological receptors and that no corrective action is necessary from an ecological perspective.

## WHAT ARE THE CLEANUP OBJECTIVES AND LEVELS?

The remedial action objectives (RAOs) are to:

1) Protect humans from exposure to shallow groundwater and prevent consumption of groundwater from the shallow aquifer (where contaminant concentrations are higher than regulatory standards) and
2) Prevent unacceptable human contact with site soils.

Table 1 lists the COCs that require cleanup at SLC-36. The first column lists the chemical name, the second column lists the maximum concentration detected in the impacted media at SLC-36 during the RFI, and the last column presents the clean-up level to be achieved at the site.

Please note that through the risk management decision process, several contaminants originally designated as COCs were determined not to pose an unacceptable risk (See "Summary of Site Risk," above) and are therefore not addressed by the remedial action.

**TABLE 1—CLEANUP GOALS**

| Site-Related Chemicals of Concern (COCs) | Maximum Detected Concentration | Site-Specific Clean-up Level[1] |
|---|---|---|
| GROUNDWATER | | |
| Vinyl Chloride | 190 ug/L | 1 ug/L |
| Cis-1,2-dichloroethene | 1,200 ug/L | 70 ug/L |
| SOIL | | |
| Total PCBs | 158.1 mg/kg[2] | 18 mg/kg[3], 0.5 mg/kg[4] |

[1] Clean-up level represents the most stringent value among USEPA and FDEP criteria at the time of the final investigation.
[2] This is the maximum value at the time the CMS was completed. Since that time, an IM has been completed. Remaining PCB concentrations in soil are below the 18 ppm site-specific cleanup level inside the fence and the 0.5 ppm cleanup level outside the fence.
[3] Site specific cleanup level calculated for restricted access, secure, active launch facilities. This is the clean-up level that will be used during the removal action.
[4] Residential Soil Clean-up level from Florida Administrative Code 62-777. For soils remaining following clean-up, application of land use controls will be applied based on this value, in order to ensure that a residential use scenario does not occur.

## CLEANUP ALTERNATIVES FOR SLC-36

Clean-up alternatives are different combinations of plans to restrict site use and to contain, remove, and/or treat contamination in order to protect public health and the environment. Several potentially applicable alternatives were considered for both soil and groundwater, however because of low levels of contamination present at SLC-36, presumptive remedies were identified for both media.

Both soil washing and incineration were considered as potential soil remedies, along with excavation. The three remedies all had the potential to be equally effective, but soil washing and incineration were significantly most expensive. The CMS therefore identified excavation of contaminated soil as the presumptive remedy. The clean-up alternatives considered for the SLC-36 are summarized below.

Air sparging, pump and treat, and innovative technologies (dehalogenation with zero valent iron, in-situ chemical oxidation, and enhan-hanced in-situ bioremediation) were considered as potential groundwater remedies, along with natural attenuation and long term monitoring. Natural attenuation accompanied by monitoring was identified as the presumptive remedy. Lines of evidence indicate that contaminant levels are declining through natural processes. The other potential groundwater remedies were eliminated due a combination of factors including cost, cleanup time, and the potential for failure due to inadequate contact with the contaminants.

The selected remedy is described in detail, below.

***Soil Removal, Land Use Controls, and Long Term Monitoring:*** Under this alternative, material processes such as dispersion, advection, and adsorption would reduce COC concentrations in groundwater to cleanup levels over time. Groundwater would be regularly sampled and analyzed to monitor and document the decrease in contaminant concentrations. Data collected during the RFI and other Basewide assessments indicate contaminant levels will likely be reduced below cleanup levels within ten years. A soil removal has been conducted to address all remaining soils at SLC-36 that exceed the site-specific cleanup standard of 18 mg/kg for PCBs. The risk assessment determined that this concentration would be protective of human health, as long as access to SLC-36 is restricted and it remains an active launch complex. The 45$^{th}$ SW would implement site-specific land use controls to protect against exposure to contaminated soils and shallow groundwater and to prevent consumption of shallow groundwater. In the long term, this remedy alternative will meet RAOs and will also allow re-evaluation to determine if the remedy is working and provide an opportunity for change if necessary. The 45$^{th}$ SW, USEPA, and FDEP have entered into a Memorandum of Agreement (MOA), which outlines how land use controls will be managed at the 45$^{th}$ SW. The MOA requires periodic inspections, condition certification, construction project coordination, and agency notification. Site-specific details can be found in the SLC-36 Land Use Control Implementation Plan (LUCIP).

## EVALUATION OF REMEDY ALTERNATIVES

Each cleanup alternative was evaluated to determine how each potential remedy would comply with the four general standards for corrective measures. The four general standards for corrective measures are:

- Overall protection of human health and the environment;
- Attain media cleanup standards;
- Control the sources of releases; and
- Comply with standards for management of wastes

Presumptive remedies were identified for both soil and groundwater. Upon further evaluation, it determined that the presumptive remedies (excavation of contaminated soils and ground-water natural attenuation with long term monitoring) meet each of the above criteria.

## LAND USE CONTROLS AGREEMENT

By separate MOA dated 23 December 1999, with USEPA and FDEP, CCAFS, on behalf of the Department of the Air Force, agreed to implement base-wide, certain periodic site inspection, condition certification, and agency notification procedures designed to ensure the maintenance by installation personnel of any site-specific land use controls deemed necessary for future protection of human health and the environment. A fundamental premise underlying execution of that agreement was that through the USAF's substantial good-faith compliance with the procedures called for therein, reasonable assurances would be provided to the USEPA and FDEP as to the permanency of those remedies which included the use specific land use controls.

Although the terms and conditions of the MOA are not specifically incorporated or made enforceable herein by reference, it is understood and agreed by the USAF, USEPA, and FDEP that the contemplated permanence of the remedy reflected herein shall be dependent on CCAFS's substantial good-faith compliance with the specific land use control maintenance commitments reflected therein. Should such compliance not occur or should the MOA be terminated, it is understood that the protectiveness of the remedy concurred in may be reconsidered and that additional measures may need to be taken to adequately ensure necessary future protection of human health and the environment.

## WHAT IMPACTS WOULD THE CLEANUP HAVE ON THE LOCAL COMMUNITY?

There would be no impacts to the surrounding communities because groundwater underlying the site is not used for potable water. The natural attenuation and LTM alternative includes administrative actions to limit the use of groundwater until cleanup levels have been reached. Additionally, residential use of the SLC-36 is not occurring nor is it expected in the near future. As long as CCAFS remains an active gateway for the aerospace industry, SLC-36 is expected to continue operating in an industrial capacity.

Since the soil removal that was conducted in 2001, remaining soil concentrations do not pose a risk to site workers. However, a potential risk to hypothetical future residents remains. Based on this potential risk, land use controls will be put in place to ensure that the site remains industrial in nature.

## WHY DOES THE 45th SW IRP TEAM RECOMMEND THIS REMEDY?

The team recommends the proposed remedy because the naturally occurring attenuation processes observed at the site (and predicted with base groundwater models) are sufficient for the removal of low concentrations of volatile organic compounds. Industrial soil cleanup targets have already been achieved through a removal action. The LTM program will be used to assess and document reduction in groundwater contaminant concentrations to the cleanup goals. The land use controls will also prevent exposure to soil and groundwater contaminants prior to the residential cleanup levels being achieved. The proposed remedy meets the four general standards for corrective measures.

## NEXT STEPS

The 45th SW IRP team will review all comments on this SB to determine if the proposed remedy needs modification prior to implementation and prior to incorporating the proposed remedy into the CCAFS HSWA permit. If the proposed remedy is determined to be appropriate for implementation, then the LTM program will be continued, the soil removal will be planned, the land use controls will be initiated, and a LUCIP will be developed and incorporated into the MOA.

# LAND USE CONTROL IMPLEMENTATION PLAN

## SPACE LAUNCH COMPLEX 36
## SOLID WASTE MANAGEMENT UNIT 50 (SWMU NO. 50)
## 45TH SPACE WING
## CAPE CANAVERAL AIR FORCE STATION
## BREVARD COUNTY, FLORIDA

**Facility Description**

Space Launch Complex 36 (SLC-36), Solid Waste Management Unit 50 (SWMU No. 50), is located on Central Control Road, approximately 0.25 miles west of the Atlantic Ocean on Cape Canaveral Air Force Station (CCAFS), Florida. SLC-36 was constructed in 1961 for the Atlas Centaur Missile Program. The launch complex has continued to be an active facility and the two launch pads are used for government and commercial launches The facility was operated and maintained by NASA from 1961 through 1990, when it was transferred back to the USAF. SLC-36 is currently surrounded by two security fences, is a restricted access area, and is only accessible by authorized personnel.

**Location** (Reference Site Map on last page of this document)

| Site Plan Coordinate | Northing | Easting |
|---|---|---|
| North | 1504943.01 | 803637.94 |
| West | 1503749.49 | 802694.67 |
| South | 1502430.85 | 803339.56 |
| East | 1504471.38 | 805206.84 |

**Objective**

Implementation of site-specific land use controls to protect against exposure to contaminated soil and shallow groundwater and to prevent consumption of the shallow groundwater.

**Land Use Controls (LUCs) to be Implemented**:

Administrative:

- The property will be prohibited from residential or other non-industrial development without prior written notification to the Florida Department of Environmental Protection (FDEP) and the United States Environmental Protection Agency (USEPA) concerning the SWMU land use change. Dependent on site conditions and the nature and intensity of the proposed land use change, additional site investigations and assessments could be required for the USAF. Based on these analyses, additional re-medial measures may be required prior to land use change.

Please contact the 45 SW Installation Restoration Program Office to obtain additional information, including:
the 45 SW Land Use Controls Operation Plan; the CCAFS HSWA Permit; a complete record of corrective actions at SLC-36; or other related documents, guidance, and regulations. The IRP office can be reached by phone at (321) 853-0965. Information can also be obtained via the IRP website at http://www.mission-support.org/45SW_IRP_EA

- Perform and document baseline LUC audit upon finalization of the Statement of Basis.
- Perform and document quarterly LUC compliance inspections in accordance with 45th SW LUC Operations Manual.
- Perform, document, and report an annual audit on LUC implementation, maintenance, and compliance in accordance with the 45th SW LUC Operations Manual and the current CCAFS Corrective Action Management Plan (CAMP).
- The property Land Use Control Implementation Plan (LUCIP) shall remain in effect until:
  a) Changes to applicable Federal and State risk-based clean-up standards occur which indicate site contaminants no longer pose potential residential risk; or
  b) Reduction in site contaminant concentrations to below Federal and State residential risk-based clean-up standards occurs.
- In the event of property realignment, transfer, or re-use for non-industrial or non-commercial purposes, assessment and remediation may be necessary to ensure that impacts to ecological receptors are not increased or to mitigate potential ecological impacts where residual contamination exists.

Soil:

- Soils will not be disturbed or moved during property development, maintenance or construction, without:
  a) USAF review, coordination, and approval of the proposed construction/ development plans via AF Form 103 (Base Civil Engineer Work Clearance Request), 332 (Base Civil Engineer Work Request), 813 (Request for Environmental Impact Analysis), or similar process;
  b) Ensuring proper engineering controls are in-place so that unauthorized release or disposal of the affected media does not occur. This includes conducting appropriate testing and developing a disposal plan in accordance with the LUC Operations Manual prior to off-site disposal; and
  c) Use of proper personal protection equipment by site workers, as determined by the project proponent's occupational health and safety advisor.
- The site will be posted with proper warning signs in accordance with the LUC Operations Manual and the CCAFS Hazardous and Solid Waste Amendments (HSWA) Permit.
- The property will include fences or other similar control features to exclude trespassers in accordance with Base LUC Operations Plan.

Groundwater:

- The consumptive use of the site's surficial aquifer groundwater will be prohibited.
- Incidental consumption and dermal exposure to groundwater from the surficial

aquifer will be prevented. This will be addressed by the project proponent's health and safety advisor.

- Groundwater will not be contacted, pumped, or discharged during property development, maintenance, or construction, without:
  a) USAF review, coordination, and approval of the proposed construction/ development plans via AF Form 103 (Base Civil Engineer Work Clearance Request), 332 (Base Civil Engineer Work Request), 813 (Request for Environmental Impact Analysis), or similar process;
  b) Ensuring proper engineering controls are in place so that unauthorized release or disposal of the affected media (groundwater) does not occur. This includes conducting appropriate testing and developing a disposal plan in accordance with the LUC Operations Manual prior to any pumping or discharge of groundwater; and
  c) Use of proper personal protection equipment by site workers, as determined by the project proponent's occupational health and safety advisor.
- USAF will institute a long term monitoring (LTM) program of groundwater in the surficial aquifer in accordance with an approved LTM work plan and the CAMP as part of the CCAFS HSWA Permit. Reports will be submitted annually, along with revised work plan recommendations, until such a time as the relevant regulatory agencies agree that contaminant concentrations in groundwater no longer warrant LTM.
- The site will be posted with proper warning signs in accordance with the LUC Operations Manual and the CCAFS HSWA permit.

**Statement of Basis:**
The Statement of Basis (SB) is currently being reviewed. It is anticipated that the SB will be accepted/incorporated into the HSWA Permit during its next modification.

**Additional Information:**

Long Term Monitoring Plan: LTM is being utilized to monitor the fate and transport of vinyl chloride and cis-1,2-dichloroethene in groundwater and potential impacts to human health and the environment. LTM has been implemented on a semi-annual basis. The scope and magnitude of the LTM program are reviewed and adjusted annually, based on the most recent data trends.

Pertinent Document Reference:

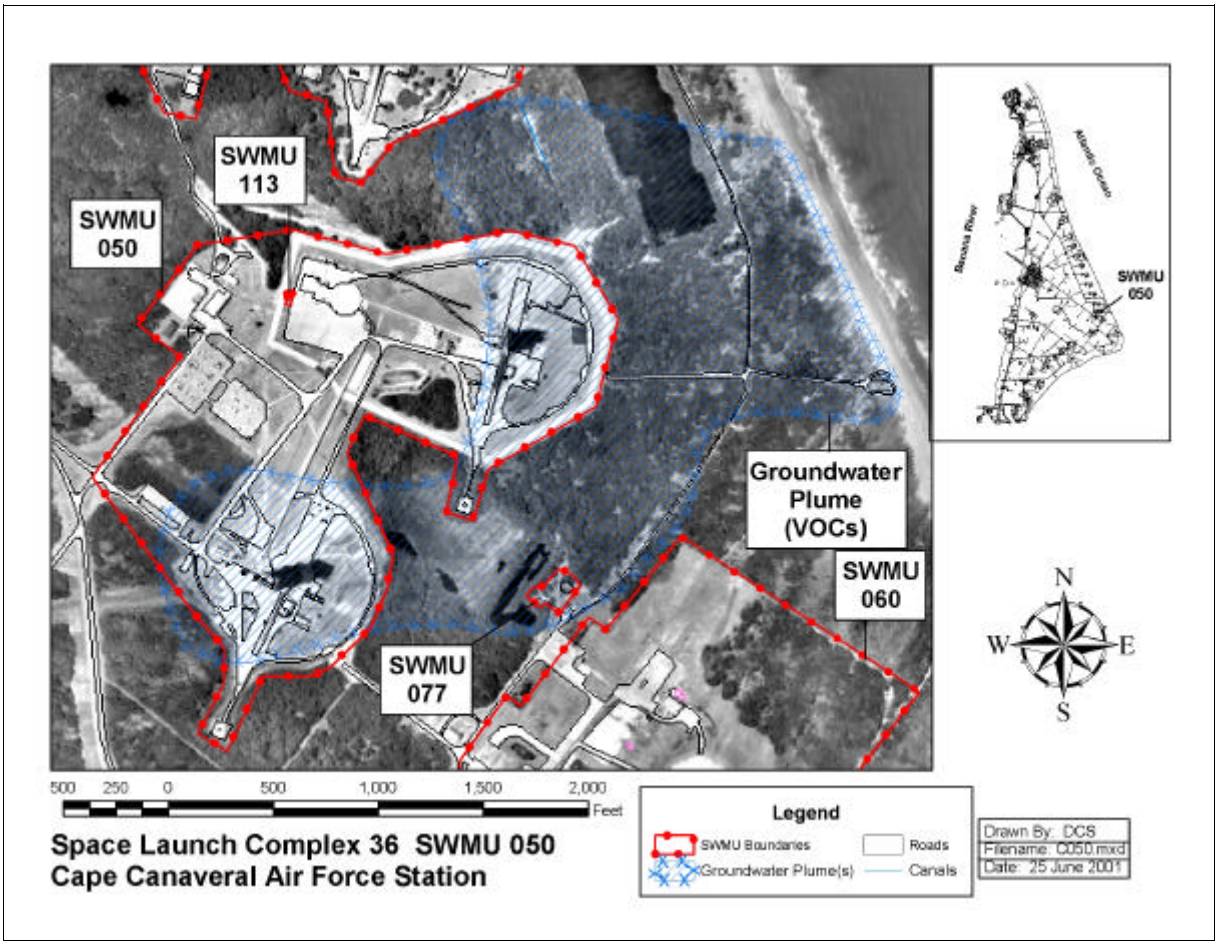
RCRA Facility Investigation Report/Corrective Measures Study Workplan, Space Launch Complex 36, SWMU No. 50, HSW Group., December 1998.

Corrective Measures Study Report, Space Launch Complex 36, SWMU No. 50, HSW Group, July 2000.

Groundwater Monitoring Plan, Space Launch Complex 36, SWMU No. 50, HSW Group, Sept. 2000.

Interim Measure Report, Space Launch Complex 36, SWMU No. 50, Cape Env. Mgt., Inc., Sept 2001.

**Space Launch Complex 36 – Site Map**

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